Claims after this response:

1(Previously Presented). An encoder comprising:

a drum comprising a circular cylindrical surface characterized by an axis and a radius of curvature, said drum having a surface with a normal perpendicular to said axis;

a first track comprising a plurality of alternating reflective and non-reflective stripes arranged on said circular cylindrical surface, said reflective stripes comprising a portion of a said circular cylindrical surface, each reflective stripe having a circular cylindrical outer surface having an axis coincident with said axis of said drum;

a first light source that illuminates said outer surface of said reflective stripes at an oblique angle relative to said normal; and

a first photodetector positioned to receive light from said light source that is reflected from said reflective stripes of said first track when said drum moves relative to said photodetector, an image of said reflective stripes of said first track being formed on said first photodetector, said image having a magnification that depends on said radius of curvature.

2(Previously Presented). An encoder comprising:

a drum comprising a circular cylindrical surface characterized by an axis, said drum having a surface with a normal perpendicular to said axis;

a first track comprising a plurality of alternating reflective and non-reflective stripes arranged on said circular cylindrical surface, said reflective stripes comprising a portion of a said circular cylindrical surface;

a first light source that illuminates said stripes at an oblique angle relative to said normal; and

a first photodetector positioned to receive light from said light source that is reflected

from said reflective stripes of said first track when said drum moves relative to said photodetector, an image of said reflective stripes of said first track being formed on said first photodetector and having a magnification that depends on said radius of curvature,

wherein said first light source emits a collimated beam of light.

3(Original). The encoder of Claim 1 wherein said drum rotates about said axis when a shaft is rotated.

4(Original). The encoder of Claim 3 wherein said shaft is coincident with said axis.

5(Previously Presented). The encoder of Claim 1 wherein said circular cylindrical surface lies between said first track and said axis.

6(Previously Presented). The encoder of Claim 1 wherein said first track lies between said circular cylindrical surface and said axis.

7(Currently amended). The encoder of Claim 1 further comprising:

a second track comprising a plurality of alternating reflective and non-reflective stripes arranged on said circular cylindrical surface;

a second light source for illuminating said stripes of said second ~~stripe~~ track at an oblique angle relative to said normal; and

a second photodetector positioned to receive light from said second light source that is reflected from said reflective stripes of said second track, wherein said drum moves relative to said second photodetector.

8(Original). The encoder of Claim 7, wherein said reflective stripes of said second track have widths that are different from said reflective stripes of said first track.